

CLAIMS:

1. A method for manufacturing a multi-layer information recording medium, comprising:

a first step of covering a first information surface of a substrate having the first information surface with a first thin-film layer;

a second step of placing a photo-curing resin film on the first thin-film layer, and placing a light transmissive resin stamper on the film followed by pressing;

a third step of curing the photo-curing resin film by allowing light to pass through via the light transmissive resin stamper;

a fourth step of forming a second information surface by stripping the light transmissive resin stamper from the cured photo-curing resin film; and

a fifth step of forming an information layer by covering the second information surface formed in the fourth step with a second thin-film layer,

wherein the light transmissive resin stamper has a transfer surface for forming the second information surface, and a metal thin film is formed on the transfer surface.

2. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:
plural information layers are formed on the substrate

by repeating the second through fifth steps more than once on the second thin-film layer formed in the fifth step.

3. The method for manufacturing a multi-layer information recording medium according to Claim 1 or 2, further comprising:

a step of forming a transparent layer on an outermost thin-film layer formed in the fifth step.

4. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:

in the second step, after the photo-curing resin film is placed on the thin-film layer and laminated to the thin-film layer by pressing, the light transmissive resin stamper is placed on the film , and then , the light transmissive resin stamper is pressed.

5. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:

in the second step, the light transmissive resin stamper is pressed after the photo-curing resin film and the light transmissive resin stamper are placed on the thin-film layer.

6. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:

UV ray transmittance of the light transmissive resin stamper is 5 to 80%.

7. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:
a thickness of the metal thin film formed on the light transmissive resin stamper is 5 to 50 nm.

8. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:
the light transmissive resin stamper is formed by providing a stamper made of polycarbonate resin with a metal thin film having a thickness that allows transmission of UV rays.

9. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:
the metal thin film formed on the light transmissive resin stamper contains silver (Ag) or aluminum (Al) as a main component.

10. The method for manufacturing a multi-layer information recording medium according to Claim 3, wherein:
the transparent layer is formed to seal the information layers formed between the transparent layer and the substrate

having the first information surface.

11. The method for manufacturing a multi-layer information recording medium according to Claim 3, wherein:

the photo-curing resin film to be used is smaller than an outer edge of the substrate having the first information surface and an outer edge of the transparent layer.

12. The method for manufacturing a multi-layer information recording medium according to Claim 3, wherein:

the multi-layer information recording medium has two or more information layers each being formed of the photo-curing resin film, an outer edge of the photo-curing resin films each is made smaller than an outer edge of the substrate having the first information surface and an outer edge of the transparent layer, and the outer edge of the photo-curing resin films each is made smaller with distances from the substrate having the first information surface.

13. The method for manufacturing a multi-layer information recording medium according to Claim 3, wherein:

the substrate having the first information surface has a disc-like shape provided with a center hole, the photo-curing resin film has a disk-like shape provided with a center hole, an inside diameter of the photo-curing resin film is made larger

than an inside diameter of the substrate having the first information surface, and the transparent layer is formed extensively onto the substrate having the first information surface that is placed medially in the center hole of the photo-curing resin film.

14. The method for manufacturing a multi-layer information recording medium according to Claim 13, wherein:

the inside diameter of the photo-curing resin films each is made larger with distances from the substrate.

15. The method for manufacturing a multi-layer information recording medium according to Claim 13, wherein:

an outside diameter of the photo-curing resin films each is made smaller than an outside diameter of the substrate having the first information surface and an outside diameter of the transparent layer, and the outside diameter of the photo-curing resin films each is made smaller with distances from the substrate having the first information surface.

16. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:

the substrate having the first information surface to be used is of a convex warped shape when placed with the information surface facing upward.

17. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:

in the second step of placing the photo-curing resin film on the thin-film layer and placing the light transmissive resin stamper thereon followed by pressing, the stamper is pressed by a roller having a surface temperature of 20 to 100°C at 20 to 100 kg/cm².

18. The method for manufacturing a multi-layer information recording medium according to Claim 1, wherein:

in the second step of placing the photo-curing resin film on the thin-film layer and placing the light transmissive resin stamper thereon followed by pressing, the stamper is pressed by a roller having a surface temperature of 25 to 80°C at 20 to 80 kg/cm².

19. The method for manufacturing a multi-layer information recording medium according to Claim 1, further comprising:

a step of annealing.

20. A multi-layer information recording medium obtained by the method for manufacturing the multi-layer information recording medium according to Claim 1.

21. The multi-layer information recording medium according to Claim 20, wherein:

four information layers are included, and a thickness of each information layer is 5 to 25 μm .

22. The multi-layer information recording medium according to Claim 20, wherein:

four information layers are included, and a thickness of the medium is 1.16 to 1.5 mm.